AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A multi-air conditioner comprising:

an outdoor unit installed at an outdoor location, and having therein a compressor, a refrigerant flow ~~control part~~ controller connected to a discharge outlet of the compressor and being configured to guide ~~, for guiding~~ refrigerant according to an operation condition, an outdoor heat exchanger connected with the refrigerant ~~flow control part~~ flow controller, and at least the flow controller and the heat exchanger being connected by piping ~~a pipe part connecting the elements~~;

a plurality of indoor units installed at respective indoor rooms and provided ~~therein~~ with an indoor heat exchanger having ~~of which~~ one end ~~is~~ connected with a distributor, and an electronic expansion valve having ~~of which~~ one end ~~is~~ connected to the indoor heat exchanger and another ~~the other~~ end ~~is~~ connected with the distributor; and

the distributor being positioned ~~provided~~ between the outdoor unit and the indoor units and being configured to ~~, for~~ selectively guide ~~guiding~~ the refrigerant introduced from the outdoor unit to the plurality of indoor units according to the operation condition and to guide ~~inversely guiding~~ the refrigerant passing through the indoor units, to the outdoor unit, the piping including ~~pipe part having~~ a first connection pipe having ~~of which~~ one end ~~is~~ connected to the refrigerant ~~flow~~

~~control part~~ flow controller, the other end ~~is~~ connected to the distributor, and an outdoor heat exchanger is connected between the one end and the other end of the first connection pipe, a second connection pipe having ~~of which~~ one end ~~is~~ connected with the refrigerant ~~flow control part~~ flow controller and being configured to guide [[,]] ~~for guiding~~ the compressed refrigerant to the distributor, and a third connection pipe connecting a ~~an~~ suction inlet of the compressor with the distributor and having a mid portion connected to the refrigerant ~~flow control part~~ flow controller and being configured to guide [[,]] ~~for guiding~~ a low pressure/vapor-phase refrigerant to the compressor.

2. (Currently Amended) The multi-air conditioner of claim 1, wherein the operation condition comprises:

a first mode in which all the indoor rooms are operated in a cooling mode;

a second mode in which a majority of indoor rooms are operated in the cooling mode and a minority of indoor rooms are operated in a heating mode;

a third mode in which all the indoor rooms are operated in the heating mode; and

a fourth mode in which a majority of indoor rooms are operated in the heating mode and a minority of indoor rooms are operated in the cooling mode.

3. (Currently Amended) The multi-air conditioner of claim 2, wherein the refrigerant ~~flow control part~~ flow controller comprises:

a first auxiliary connection pipe with ~~of which~~ one end ~~is~~ connected to ~~with~~ the discharge outlet of the compressor;

a passage control unit with ~~of which~~ one end ~~is~~ connected to the other end of the first auxiliary connection pipe, the passage control unit changing the flow of the refrigerant introduced from the first auxiliary connection pipe according to the operation condition;

a second auxiliary connection pipe with ~~of which~~ one end ~~is~~ connected to ~~with~~ the passage control unit and the other end ~~is~~ connected to ~~with~~ the first connection pipe; and

a third auxiliary connection pipe with ~~of which~~ one end ~~is~~ connected to ~~with~~ the passage control unit and the other end ~~is~~ connected to ~~with~~ the mid portion of the third connection pipe.

4. (Currently Amended) The multi-air conditioner of claim 3, wherein the passage control unit comprises ~~is provided therein with~~ an electronic valve for controlling the flow of the refrigerant by ~~an~~ electronic control ~~method~~ according to the operation condition.

5. (Currently Amended) The multi-air conditioner of claim 3, wherein the passage control unit guides the refrigerant by ~~with~~ changing ~~the~~ position ~~thereof~~ according to the operation condition, and comprises an inner valve having a flow passage formed therein.

6. (Currently Amended) The multi-air conditioner of claim 5, wherein the refrigerant ~~flow-control part~~ flow controller further comprises a delay-preventive unit for allowing the operation of the passage control unit to be performed without a delay.

7. (Currently Amended) The multi-air conditioner of claim 6, wherein the delay-preventive unit comprises:

a delay-preventive pipe with ~~of which~~ one end ~~is~~ connected to ~~with~~ a mid portion of the second connection pipe; and

a pressure-closing pipe with ~~of which~~ one end ~~is~~ connected to ~~with~~ the other end of the delay-preventive pipe and the other end ~~is~~ connected with the passage control unit, the pressure-closing pipe guiding a predetermined amount of the refrigerant to an inside of the passage control unit to fix the inner valve such that one side of the inner valve is continuously pressed during the operation of the third or fourth mode.

8. (Currently Amended) The multi-air conditioner of claim 7, wherein the second connection pipe is connected to the mid portion of the first auxiliary connection pipe of the refrigerant flow ~~control part~~ controller, and the passage control unit comprises a four-way valve.

9. (Currently Amended) The multi-air conditioner of claim 8, wherein the delay-preventive unit comprises:

a uniform pressure valve provided on the delay-preventive pipe, for cutting off a low/high pressure refrigerant flowing through the delay-preventive pipe to maintain the pressures of the ~~refrigerants~~ refrigerant respectively at predetermined levels, during the operation in ~~of~~ the first or second mode; and

a pressure-lowering auxiliary refrigerant flow pipe with ~~of which~~ one end ~~is~~ connected to ~~with~~ the other end of the delay-preventive pipe and the other end ~~is~~ connected with the mid portion of the third connection pipe, the pressure-lowering auxiliary refrigerant flow pipe lowering the refrigerant pressure of the pressure-closing pipe such that the inner valve is rapidly moved when the operation is converted from the third or fourth mode to the first or second mode.

10. (Original) The multi-air conditioner of claim 9, wherein the delay-preventive unit comprises:

an auxiliary uniform pressure valve provided on a connection part of the auxiliary refrigerant flow pipe and the delay-preventive pipe, the auxiliary uniform pressure valve cutting off a space between the auxiliary refrigerant flow pipe and the delay-preventive pipe to maintain the pressures of the refrigerants respectively at predetermined levels, during the operation of the first or second mode; and

a rapid refrigerant flow pipe provided between the uniform pressure valve and the auxiliary uniform pressure valve, for rapidly introducing the refrigerant

into the pressure closing pipe such that the inner valve is rapidly moved when the operation is converted from the first or second mode to the third or fourth mode.

11. (Currently Amended) The multi-air conditioner of claim 2, wherein the piping ~~pipe part~~ comprises:

a check valve installed on the first connection pipe adjacent to the distributor, for passing the refrigerant toward the distributor only during the first or second mode of operation; and

a parallel expansion pipe including a parallel expansion element ~~valve~~ installed in parallel with the check valve, ~~for~~ the parallel expansion pipe guiding the refrigerant introduced from the distributor to the outdoor heat exchanger only during the third or fourth mode of operation, said parallel expansion element ~~and~~ including an element for expanding the refrigerant.

12. (Currently Amended) The multi-air conditioner of claim 11 ~~10~~, wherein the expansion element on the parallel expansion pipe further comprises a heating electronic expansion valve, for expanding the refrigerant introduced into the outdoor heat exchanger during the third or fourth mode of operation.

13. (Currently Amended) The multi-air conditioner of claim 10, wherein the pipe part comprises:

a check valve installed on the first connection pipe adjacent to the distributor, for passing the refrigerant only during the first or second mode of operation; and

a parallel expansion valve installed in parallel with the check valve, for guiding the refrigerant introduced from the distributor to the outdoor heat exchanger only during the third or fourth mode operation, the parallel expansion valve ~~and~~ including an element for expanding the refrigerant.

14. (Currently Amended) The multi-air conditioner of claim 13, wherein the expansion valve includes ~~element on~~ a ~~the~~ parallel expansion pipe and further comprises a heating electronic expansion valve for expanding the refrigerant introduced into the outdoor heat exchanger during the third or fourth mode of operation.

15. (Currently Amended) The multi-air conditioner of claim 2, wherein the distributor comprises:

a guide pipe ~~part~~ for guiding the refrigerant introduced through the first or second connection pipe of the outdoor unit to the indoor units according to the operation mode and guiding the refrigerant introduced from the indoor units to the outdoor unit through the first or third connection pipe; and

a valve ~~part~~ installed on the guide pipe ~~part~~, for controlling a flow of the refrigerant such that the refrigerant is selectively introduced into the respective indoor units according to the operation condition.

16. (Currently Amended) The multi-air conditioner of claim 15, wherein the guide pipe ~~part~~ comprises:

a high pressure/liquid-phase passage connected with the first connection pipe, for guiding a high pressure/liquid-phase refrigerant between the indoor units and the outdoor unit;

a high pressure/vapor-phase passage connected with the second connection pipe, for guiding a high pressure/vapor-phase refrigerant between the indoor units and the outdoor unit; and

a low pressure/vapor-phase passage connected with the third connection pipe, for guiding a low pressure/vapor-phase refrigerant between the indoor units and the outdoor unit.

17. (Currently Amended) The multi-air conditioner of claim 16, wherein the guide pipe ~~part~~ comprises:

a high pressure/liquid-phase refrigerant connection pipe with ~~of which~~ one end ~~is directly~~ connected with the first connection pipe of the outdoor unit;

high pressure/liquid-phase refrigerant branch pipes having one end ~~which is~~ branched from the high pressure/liquid-phase refrigerant connection pipe

according to the number of the indoor units, and the other end connected with an ~~the~~ electronic expansion valve of each of the indoor units;

a high pressure/vapor-phase refrigerant connection pipe with ~~of which~~ one end ~~is directly~~ connected to ~~with~~ the second connection pipe of the outdoor unit; high pressure/vapor-phase refrigerant branch pipes having one end ~~which is~~ branched from the high pressure/vapor-phase refrigerant connection pipe according to the number of the indoor units, and the other end connected to ~~with~~ the heat exchanger of each of the indoor units;

a low pressure/vapor-phase refrigerant connection pipe with ~~of which~~ one end ~~is directly~~ connected to ~~with~~ the third connection pipe of the outdoor unit; and low pressure/vapor-phase refrigerant branch pipes having one end ~~which is~~ branched from the low pressure/vapor-phase refrigerant connection pipe according to the number of the indoor units, and the other end connected to ~~with~~ the heat exchanger of each of the indoor units.

18. (Currently Amended) The multi-air conditioner of claim 17, wherein the distributor further comprises a liquefaction stop unit installed between the second connection pipe and the low pressure/vapor-phase refrigerant connection pipe, for preventing the high pressure/vapor-phase refrigerant from being liquefied due to a stagnation during the first mode of operation.

19. (Currently Amended) The multi-air conditioner of claim 18, wherein the liquefaction stop unit comprises:

a bypass pipe connecting the second connection pipe with the low pressure/vapor-phase refrigerant connection pipe, for bypassing the stagnated high pressure/vapor-phase refrigerant during the first mode of operation; and

an electronic conversion valve ~~installed~~ on the bypass pipe, for converting the high pressure/vapor-phase refrigerant stagnated in the second connection pipe into the low pressure/vapor-phase refrigerant.

20. (Currently Amended) The multi-air conditioner of claim 18, wherein the valve ~~part~~ comprises selection valves respectively installed on the high pressure/vapor-phase refrigerant branch pipe and the low pressure/vapor-phase refrigerant branch pipe, for controlling the flow of the refrigerant such that when the indoor room operates in the cooling mode, a valve on the high pressure/vapor-phase refrigerant branch pipe is closed and a valve on the low pressure/vapor-phase refrigerant branch pipe is open, and when the indoor room operates in the heating mode, each of the valves is oppositely open and closed ~~to the contrary~~.

21. (Currently Amended) The multi-air conditioner of claim 20, wherein the electronic expansion valve of the indoor unit guides, in the heating mode of operation, the refrigerant from the indoor heat exchanger to the high pressure/liquid-phase refrigerant branch pipe without an expansion by fully

opening ~~full-opening~~ an opening thereof, and guides, in the cooling operation, the refrigerant from the high pressure/liquid-phase refrigerant branch pipe to the indoor heat exchanger by adjusting the opening ~~thereof~~ to expand the refrigerant.

22. (Currently Amended) The multi-air conditioner of claim 14, wherein the distributor comprises:

a high pressure/liquid-phase refrigerant connection pipe with ~~of which~~ one end ~~is directly~~ connected with the first connection pipe of the outdoor unit;

high pressure/liquid-phase refrigerant branch pipes having one end ~~which is~~ branched from the high pressure/liquid-phase refrigerant connection pipe according to the number of the indoor units, and the other end connected to ~~with~~ the electronic expansion valve of each of the indoor units;

a high pressure/vapor-phase refrigerant connection pipe with ~~of which~~ one end ~~is directly~~ connected with the second connection pipe of the outdoor unit;

high pressure/vapor-phase refrigerant branch pipes having one end ~~which is~~ branched from the high pressure/vapor-phase refrigerant connection pipe according to the number of the indoor units, and the other end connected with the heat exchanger of each of the indoor units;

a low pressure/vapor-phase refrigerant connection pipe with ~~of which~~ one end ~~is directly~~ connected with the third connection pipe of the outdoor unit;

low pressure/vapor-phase refrigerant branch pipes having one end which is branched from the low pressure/vapor-phase refrigerant connection pipe according

to the number of the indoor units, and the other end connected with the heat exchanger of each of the indoor units; and

selection valves respectively installed on the high pressure/vapor-phase refrigerant branch pipe and the low pressure/vapor-phase refrigerant branch pipe, for controlling the flow of the refrigerant such that when the indoor room operates in the cooling mode ~~model~~, a valve on the high pressure/vapor-phase refrigerant branch pipe is closed and a valve on the low pressure/vapor-phase refrigerant branch pipe is open, and when the indoor room operates in the heating mode, each of the valves is oppositely open and closed ~~to the contrary~~.

23. (Currently Amended) The multi-air conditioner of claim 22, further comprising a liquefaction stop unit installed between the second connection pipe and the low pressure/vapor-phase refrigerant connection pipe, for preventing the high pressure/vapor-phase refrigerant from being liquefied due to stagnation during the first mode of operation.

24. (Currently Amended) The multi-air conditioner of claim 23, wherein the liquefaction stop unit comprises:

a bypass pipe connecting the second connection pipe with the low pressure/vapor-phase refrigerant connection pipe, for bypassing the stagnated high pressure/vapor-phase refrigerant during the first mode of operation; and

an electronic conversion valve installed on the bypass pipe, for converting the high pressure/vapor-phase refrigerant stagnated in the second connection pipe, into the low pressure/vapor-phase refrigerant.

25. (Currently Amended) The multi-air conditioner of claim 24, wherein the electronic expansion valve of the indoor unit guides, in the heating operation, the refrigerant from the indoor heat exchanger to the high pressure/liquid-phase refrigerant branch pipe without an expansion by fully opening ~~full-opening~~ an opening of the electronic expansion valve ~~thereof~~, and guides, in the cooling operation, the refrigerant from the high pressure/liquid-phase refrigerant branch pipe to the indoor heat exchanger by adjusting the opening thereof to expand the refrigerant.

26. (Currently Amended) The multi-air conditioner of claim 20, wherein the distributor comprises at least one distributor ~~is~~ installed ~~one or more~~ according to an installation condition of each of the indoor units.

27. (Currently Amended) The multi-air conditioner of claim 22, wherein the distributor comprises at least one distributor ~~is~~ installed ~~one or more~~ according to an installation condition of each of the indoor units.

28. (Currently Amended) The multi-air conditioner of claim 25, wherein the distributor comprises at least one distributor ~~is~~ installed ~~one or more~~ according to an installation condition of each of the indoor units.

29. (Currently Amended) The multi-air conditioner of claim 15, wherein the refrigerant flows through rear part of the first connection pipe, the second connection pipe, the third connection pipe and each of the guide pipe ~~part~~ of the distributor at equal state and pressure regardless of the operation condition.

30. (Currently Amended) The multi-air conditioner of claim 25, wherein the refrigerant flows through rear part of the first connection pipe, the second connection pipe, the third connection pipe and each of the guide pipe ~~part~~ of the distributor at equal state and pressure regardless of the operation condition.